

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An imaging system for imaging a non-planar developable surface, the system comprising:

a processor linked to an imaging detector and being capable of:

capturing at least one image of the surface, said image having a warp corresponding to the non-planar surface; and of

generating therefrom a first set of points representing the three-dimensional profile of the non-planar surface relative to a planar reference surface,

wherein the processor is arranged to fit to the first set of points, a second set of points representative of a developable mesh and to use the second set of points to texture-map the image in order to de-warp the image.

2. (Currently amended) A method of imaging a non-planar developable surface using an imaging system comprising a processor linked to an imaging detector, comprising the steps of:

- i) capturing at least one image of the surface, said image having a warp corresponding to the non-planar surface;
- ii) generating from the image a first set of points representing the three-dimensional profile of the non-planar surface relative to a planar reference surface; ~~wherein the method comprises the steps of:~~
- iii) fitting to the first set of points, a second set of points representative of a developable mesh; and
- iv) using the second set of points to texture-map the image in order to de-warp the image.

3. (Previously presented) A method as claimed in Claim 2, in which in step iii) the mesh is distorted as the second set of points is fit to the first set of points to the extent that the mesh is no longer developable, following which the distorted mesh is relaxed to a developable state.

4. (Previously presented) A method as claimed in Claim 3, in which prior to step iii) an initial surface is fit to the first set of points, and in step iii) the mesh is fit to the initial surface.
5. (Currently amended) A method as claimed in Claim 4, in which the initial surface is a developable surface, and in which, after fitting of the mesh to the initial surface, at least some of the second set of points are moved closer to corresponding ones of the first set of data points during which the mesh is distorted.
6. (Currently amended) A method as claimed in Claim ~~[[3]]~~ 2, in which points in the second set of points are not fit to the first set of points if said points in the second set of points do not correspond closely enough to any of the points in the first set of points.
7. (Previously presented) A method as claimed in Claim 3, in which the relaxation of the mesh takes place in an iterative process in which the second set of points is adjusted incrementally until distances between points in the second set of points are equalized.
8. (Previously presented) A method as claimed in Claim 2, in which the non-planar developable surface is a curled document.
9. (Previously presented) A method as claimed in Claim 8, in which the extent of the document is estimated by fitting a rectangle around extreme points of the first set of points.
10. (Previously presented) A method as claimed in Claim 8, in which the imaging detector projects a structured light pattern that forms separated light stripes across the non-planar developable surface, the first set of points being generated from the light stripes.
11. (Currently amended) A method as claimed in Claim 10, in which step ii) includes the steps of:
  - a) creating a difference image by taking a difference between an image captured with the stripes and an image captured without the stripes;
  - b) thresholding the difference image to discard portions below a threshold;

- c) counting detected stripes across the difference image in order to identify individual stripes; and
- d) triangulating the image of the non-planar surface at points corresponding with identified stripes to generate the first set of points.

12. (New) An imaging system as claimed in claim 1, further comprising a projector which is arranged in an assigned fixed position with respect to the imaging detector for projecting a structured light pattern that forms separate light stripes across the non-planar surface.

13. (New) An imaging system as claimed in claim 12, wherein the processor is configured to develop the first set of points from the light stripes.